



October 19, 2010  
ADR 2010-09

Mr. Greg Orehowsky  
Heavy Duty and Nonroad Engine Group  
Compliance and Innovative Strategies Division  
Office of Transportation and Air Quality  
Environmental Protection Agency  
Mailcode 6405J  
1200 Pennsylvania Ave, NW  
Washington DC 20460

**SUBJECT:** Emissions Defect Information Report ADR 2010-09

Dear Greg,

In accordance with the procedures outlined in 40 CFR 85, Subpart T (as referenced in 40 CFR 89, Subpart I) we are submitting the following emissions defect information report ADR 2010-09. If there are any questions regarding this submission, please contact me at (812) 377-8942 or Rich Wagner at (812) 377-7569.

Sincerely,

A handwritten signature in black ink that reads 'Victor Schneider'.

Victor Schneider  
Engine Certification  
Cummins Inc.  
Mail Code 60702  
Box 3005  
Columbus, IN 47201

[ [HYPERLINK "mailto:victor.a.schneider@cummins.com"](mailto:victor.a.schneider@cummins.com) ]  
Phone: 812-377-8942  
FAX: 812-377-8739

NOTE: The filing of a Defect Information Report is not conclusive as to the applicability of the Production Warranty provided by section 207(a) of the Clean Air Act.

ED\_002669D\_00001471-00001

## **Emissions Defect Report ADR 2010-09**

**1. CORPORATE NAME:** Cummins Inc.

**2. DEFECT DESCRIPTION:**

Some Diesel Exhaust Fluid (DEF) level sensor electrical connectors installed in Kenworth and Peterbilt trucks may not include a sealing plug in an empty connector socket. The lack of this plug may result in corrosion in the electrical harness. The corrosion may create an open circuit condition, leading to an out-of-range DEF level signal, an out-of-range DEF temperature signal, or both signals.

**3. DESCRIPTION OF AFFECTED ENGINES:**

The following is the list of the heavy-duty on-highway diesel engine families affected and the approximate volume in each:

Family 9CEXH0505CAC	2 engines
Family 9CEXH0912XAP	10 engines
Family 9CEXH0912XAQ	18 engines
Family ACEXH0408BAH	820 engines
Family ACEXH0505CAC	1122 engines
Family ACEXH0540LAQ	98 engines
Family ACEXH0912XAP	1261 engines
Family ACEXH0912XAQ	1493 engines
Family ACEXH0912XAR	365 engines

**4. (i) NUMBER OF Engines AFFECTED:** Approximately 5189

**(ii) PLANT ADDRESS:**

Cummins Midrange Engine Plant  
Rockymount, NC

Jamestown Engine Plant  
Jamestown, NY

NOTE: The filing of a Defect Information Report is not conclusive as to the applicability of the Production Warranty provided by section 207(a) of the Clean Air Act.

## **5. EVALUATION OF EMISSIONS IMPACT AND DRIVEABILITY PROBLEMS:**

Whenever the Out-Of-Range (OOR) DEF level or OOR DEF tank temperature faults are triggered, the amber warning lamp is lit.

For DEF level OOR low, DEF dosing continues and the fault is considered tampering, so a derate and tampering inducement is applied.

For DEF level OOR high, DEF dosing continues and the fault is considered tampering, so a derate and tampering inducement is applied.

For DEF tank temp OOR low, DEF dosing continues as the system uses ambient temperature as a surrogate for DEF tank temp.

For DEF tank temp OOR high, DEF dosing is suspended during that drive cycle. DEF dosing continues at the next key-cycle as ambient temperature is used as a surrogate for DEF tank temp.

## **6. EMISSIONS DATA RELATING TO DEFECT:**

When there is no DEF dosing, NOx emission can be up to engine out levels of 1.8 g/bhp-hr on the SET if EGR is on and up to 4.4 g/bhp-hr if EGR is off.

**7. MITIGATION UNDER AUDIT POLICY:** Cummins has satisfied all of the criteria of mitigation contained in the EPA Audit Policy, as follows:

- a. Systematic Discovery** – Not applicable.
- b. Voluntary Discovery** – Cummins discovered this failure while working with PACCAR.
- c. Prompt Disclosure** – Disclosure is made after pertinent information was confirmed in accordance with Defect Reporting Requirements of 15 days, well below the 21 days required in the EPA Audit Policy.
- d. Correction and Remediation** – The defect was corrected on production trucks beginning on July 13, 2010. The defect is corrected by installing a sealing plug in the empty socket. A campaign is being initiated to recall the affected trucks.
- e. Prevent Recurrence** – PACCAR is using connectors with the plugs in the empty sockets on production trucks.
- f. No Repeat Violation** – The supplier of the connector has changed methods of producing the connector to eliminate the missing plugs.

NOTE: The filing of a Defect Information Report is not conclusive as to the applicability of the Production Warranty provided by section 207(a) of the Clean Air Act.

**g. No Harm** – The driver is notified via the amber warning lamp when these faults occur and tampering inducements are applied per the AECD Appendix V.

**h. Cooperation** – Cummins Inc. continues to cooperate with EPA on these and other matters.

**8. ANTICIPATED MANUFACTURER FOLLOW-UP:** A voluntary recall is being started. VERR reports will be submitted.

NOTE: The filing of a Defect Information Report is not conclusive as to the applicability of the Production Warranty provided by section 207(a) of the Clean Air Act.